Department of Computer Science & Engineering
University of Asia Pacific (UAP)

BSc in Computer Science and Engineering
Undergraduate Admission Test - Fall 2023

Full Marks: 50   **Duration: 1 Hour**

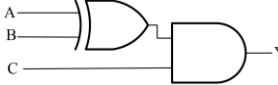| **Application ID:**	

Instructions:
- You have to complete both MCQ and written questions within 1 hour.
- Each MCQ question carries worth 1 mark. Marks for the written questions are shown in the margins.
- Fill in/write the correct answer with a ballpoint pen. There is no negative marking.

Physics – 10

01 Which one of the following is a scalar quantity?
- Ⓐ Displacement
- Ⓑ Velocity
- Ⓒ Speed
- Ⓓ Acceleration

02 The representation of the first law of thermodynamics is -
- Ⓐ $dQ = dU + dW$
- Ⓑ $dQ = dW - dU$
- Ⓒ $dQ = dU – dW$
- Ⓓ $dQ = dU + 2dW$

03 When a pure semiconductor undergoes heating, its resistance -
- Ⓐ Increases
- Ⓑ Stays constant
- Ⓒ Decreases
- Ⓓ Indeterminate

04 If an object of 2 kg falls from a height of 12 m, how long does it take to reach the ground?
- Ⓐ 2.24 seconds
- Ⓑ 1.76 seconds
- Ⓒ 2.04 seconds
- Ⓓ 1.56 seconds

05 The rate of doing work is called -
- Ⓐ Force
- Ⓑ Acceleration
- Ⓒ Power
- Ⓓ Displacement

06 A force of $(-2i + 3j + 4k)$ N is applied to a substance to move it from point (3, -4, -2) to point (-2, 3, 5). What is the total amount of work done?
- Ⓐ 7 N
- Ⓑ 59.72 J
- Ⓒ 49 J
- Ⓓ 59 J

07 What is the period of a simple pendulum for an astronaut in space?
- Ⓐ 2 sec
- Ⓑ 0 sec
- Ⓒ ∞ sec
- Ⓓ 84.6 sec

08 What is the average life of Uranium with a half-life of 4.5×10^8 years?
- Ⓐ 3.11×10^8 years
- Ⓑ 6.48×10^8 years
- Ⓒ 6.48×10^{-8} years
- Ⓓ 2.22×10^{-9} years

09 If an object weighs 60 N on Earth, what is its weight on the Moon?
- Ⓐ 20 N
- Ⓑ 600 N
- Ⓒ 10 N
- Ⓓ 0 N

10 On which of the following factor does the intensity of light depend?
- Ⓐ Frequency
- Ⓑ Wavelength
- Ⓒ Velocity
- Ⓓ Amplitude

01 What is the period of tan2x?
    Ⓐ 2π
    Ⓑ π
    Ⓒ $3\pi/2$
    Ⓓ $\pi/2$

02 The circle $x^2 + y^2 - 6x + 4y + c = 0$ touches the y axis. What is the value of c?
    Ⓐ -2
    Ⓑ 3
    Ⓒ 4
    Ⓓ 9

03 What is the slope of the line represented by the equation $x - \sqrt{3}y = 7$
    Ⓐ $-\sqrt{3}$
    Ⓑ $-1/\sqrt{3}$
    Ⓒ $1/\sqrt{3}$
    Ⓓ $\sqrt{3}$

04 How many different arrangements can be made with the letters in "CSEUAP"?
    Ⓐ 5040
    Ⓑ 2050
    Ⓒ 2520
    Ⓓ 4050

05 What is the range of cosine function?
    Ⓐ {-1,1}
    Ⓑ (-1, 1)
    Ⓒ (-1, 1]
    Ⓓ [-1, 1]

06 What is the angle between the hour hand and the minute hand at 11:30?
    Ⓐ 165
    Ⓐ 185
    Ⓒ 195
    Ⓒ 175

07 Determine the circumcenter of a triangle with vertices at (0, 0), (4, 0), and (0, 6).
    Ⓐ (2,3)
    Ⓑ (3,0)
    Ⓒ (3,2)
    Ⓓ (0,3)

08 Which set of matrices are multipliable?
    Ⓐ A_{2x2}, B_{3x3}
    Ⓑ A_{3x1}, B_{3x1}
    Ⓒ A_{3x1}, B_{3x3}
    Ⓓ A_{3x4}, B_{4x2}

09 Calculate the dot product of vectors $A = \hat{\imath} + \hat{\jmath} + \hat{k}$, $B = \sqrt{3}\,\hat{\imath} + 3\,\hat{\jmath} - 2\,\hat{k}$.
    Ⓐ $1 - \sqrt{3}$
    Ⓑ $\sqrt{3}$
    Ⓒ $1 + \sqrt{3}$
    Ⓓ 3

10 What is the mirror of a point (3,4) across the y-axis?
    Ⓐ (3,-4)
    Ⓑ (0,4)
    Ⓒ (3,4)
    Ⓓ (-3,4)

11 Which set represents the solution to the inequality $x^2 + 2x - 3 < 0$?
    Ⓐ $1 < x < 3$
    Ⓑ $x < 3$ or $x > 1$
    Ⓒ $-1 < x < 3$
    Ⓓ $-3 < x < 1$

12 Suppose there are 1200 students participating in the UAP-CSE admission test, and 200 students will be chosen. What is the probability of you being selected?
    Ⓐ $\dfrac{1}{2}$
    Ⓑ $\dfrac{1}{8}$
    Ⓒ $\dfrac{1}{4}$
    Ⓓ $\dfrac{1}{6}$

13 What is the factorial of 5?
    Ⓐ 5
    Ⓑ 120
    Ⓒ 25
    Ⓓ 555

14 What is the derivative of the sin(x)?
    Ⓐ cos(x)
    Ⓑ -sin(x)
    Ⓒ -cos(x)
    Ⓓ x sin(x)

15 Given, $y = 3x + 9$, Find the $\frac{d}{dx}y$.
    Ⓐ 12
    Ⓑ 3
    Ⓒ 6
    Ⓓ 9

ICT - 10

01 What is the full form of VIRUS?
  (A) Virtual Information Resources Under Siege
  (B) Virtual Informative Runtime User System
  (C) Vital Information Resources Under Siege
  (D) Valuable Information Resources Under Siege

02 Which SQL command is used to get records from a database table?
  (A) SELECT
  (B) UPDATE
  (C) FETCH
  (D) GET

03 What is the value of Y in the given circuit diagram?

  (A) $(A + B) . C$
  (B) $A \oplus B \oplus C$
  (C) $(A \oplus B) . C$
  (D) $(A \oplus B) + C$

04 In which network topology a central computer is not used?
  (A) Bus
  (B) Star
  (C) Tree
  (D) Mesh

05 What is the binary of decimal number 7?
  (A) 101
  (B) 110
  (C) 111
  (D) 011

06 Which device is used in star topology?
  (A) Hub
  (B) Modem
  (C) Repeter
  (D) Router

07 Which is the appropriate HTML tag to display H_2O?
  (A) <H sub> 2 </ sub O>
  (B) H₂ O
  (C) <H sub 2> </ O sub>
  (D) <H sub> <2 /sub O>

08 How many bits are needed for an IPv4 address?
  (A) 8
  (B) 16
  (C) 32
  (D) 64

09 What is the output of the following C program?

```
#include <stdio.h>
void main() {
        printf("CSE");
        printf("UAP");
}
```

  (A) CSEUAP
  (B) CSE UAP
  (C) "CSE"
      "UAP"
  (D) CSE
      UAP

10 How many heading tags are in HTML?
  (A) 6
  (B) 5
  (C) 9
  (D) 7

English - 15

01 The cat _____ on the windowsill when it started to rain.
  (A) sat
  (B) is sitting
  (C) sits
  (D) sitting

02 Please don't forget to _____ the lights before you leave the room.
  (A) turn off
  (B) turning off
  (C) turns off
  (D) turned off

03 Sarah is _____ good at playing the piano.
  (A) very
  (B) many
  (C) much
  (D) so

04 She couldn't find her keys, so she had to _____ her plans for the day.
  (A) cancel
  (B) canceling
  (C) canceled
  (D) cancels

05 Be pure ………. heart.

Ⓐ at　　　　　　　　　　　　　　　　Ⓑ in
Ⓒ from　　　　　　　　　　　　　　　Ⓓ of

06 The movie was so interesting that I couldn't help but _____ it twice.
Ⓐ watched　　　　　　　　　　　　Ⓑ watching
Ⓒ to watch　　　　　　　　　　　　Ⓓ watch

07 Have you read _____ article on climate change in today's newspaper?
Ⓐ a　　　　　　　　　　　　　　　Ⓑ the
Ⓒ an　　　　　　　　　　　　　　　Ⓓ none

08 This university invested heavily _____ research and development to generate innovative ideas.
Ⓐ in　　　　　　　　　　　　　　　Ⓑ with
Ⓒ on　　　　　　　　　　　　　　　Ⓓ for

09 What is the plural form of "child"?
Ⓐ Childrens　　　　　　　　　　　　Ⓑ Childs
Ⓒ Children　　　　　　　　　　　　Ⓓ Childes

10 Choose the antonym of "vivid."
Ⓐ Bright　　　　　　　　　　　　　Ⓑ Lively
Ⓒ Dull　　　　　　　　　　　　　　Ⓓ Colorful

11 Write a short paragraph on "Global Warming".　　　　　　　　　　　　　　5